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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/529,812

10/13/2005

Timo Leinonen

05-195

6249

20306

7590

05/27/2009

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EXAMINER

CHOI, LING SIU

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

05/27/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/529,812	Applicant(s) LEINONEN ET AL.	
	Examiner Ling-Siu Choi	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-34 and 36-54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-32, 36-47 and 54 is/are allowed.
- 6) ☒ Claim(s) 33, 34 and 48-53 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is in response to the Amendment filed 02/10/2009. Claim 35 was cancelled and claim 54 has been added. Claims 1-34 and 36-54 are now pending, wherein claims **1-32, 36-47**, and **54** are drawn to a process to prepare an olefin polymerization catalyst component in the form of particles having a predetermined size range; claim **33** is drawn to particles of the catalyst component; claim **34** and **48-50** are drawn to an olefin polymerization catalyst; and claims **51-53** are drawn to a method for polymerizing olefins.

2. In view of the Amendment, claim objections and claim rejections under 35 USC § 112, second paragraph, are withdrawn. Rejections of claims **1-32, 36-47**, and **54** under 35 U.S.C. 102(e) as being anticipated by Yang et al. (US 6,800,580 B1) or under 35 U.S.C. 102(b) as being anticipated by Cuffiani et al. (EP 0 083 073 A1) are also withdrawn. Rejections of claims 33-34 and 48-53 are maintained.

Claim Analysis

3. Summary of Claim 1:

A process for preparing an olefin polymerization catalyst component in the form of particles having a predetermined size range, said process comprising the steps of	
A	preparing a solution of a complex of a Group 2 metal and an electron donor by reacting a compound of said metal with said electron donor or a precursor

	thereof in an organic liquid reaction medium;
B	adding said solution of said complex to at least one compound of a transition metal to produce an emulsion, the dispersed phase of which contains more than 50 mol% of the Group 2 metal in said complex;
C	agitating the emulsion in order to maintain the droplets of said dispersed phase within such an average size range of 5 to 200 μm ;
D	<u>solidifying said droplets of the dispersed phase</u> by heating ; and
E	recovering the solidified particles of the olefin polymerization catalyst component;
wherein an aluminum alkyl compound of the general formula $\text{Al R}_{3-n}\text{X}_n$ wherein R stands for a straight chain or branched alkyl group having 1 to 20 carbon atoms; X stands for halogen; and n stands for 0, 1, 2 or 3, is added and brought into contact with the droplets of the dispersed phase of the agitated emulsion before recovering the solidified particles in step E	

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical

Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 33-34 and 48-53 are rejected under 35 U.S.C. 102(e) as being anticipated by Yang et al. (US 6,800,580 B1).

Yang et al. disclose a solid titanium catalyst for polymerization of an α -olefin, which is obtained by the method comprising: (A) preparing a magnesium compound solution by dissolving a magnesium halide compound and a compound of Group IIIA of the Periodic Table in a mixed solvent comprising a cyclic ether, one or more alcohols, a phosphorous compound and an organic silane; (B) reacting the magnesium compound solution with a transition metal compound, a silicon compound, or a mixture thereof, and then precipitating the solid particles; and (C) reacting the precipitated solid particles with a titanium compound and an electron donor, wherein the compound of Group IIIA of the Periodic Table is aluminum halide; the particle has $d_{90} = 70.7 \mu\text{m}$; the electron donor can be dialkyl phthalate (col. 6, lines 39-40; col. 9, lines 4-10; claims 1-2). Thus, the present claims are anticipated by the disclosure of Yang et al.

6. Claims 33-34 and 48-53 are rejected under 35 U.S.C. 102(b) as being anticipated by Cuffiani et al. (EP 0 083 073 A1).

Cuffiani et al. disclose a catalyst component obtained by the method comprising (A) preparation of emulsifiable liquid A – (i) introducing 44.07 g of

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anhydrous MgCl_2 , 199 g of anhydrous AlCl_3 , 640 ml of anhydrous toluene, and 80 ml of dehydrated 1,2-dichloroethane into a flask fitted with stirrer; (ii) heating the resulting suspension to 110°C and then maintaining it at that temperature for 2 hours; and then (iii) filtering it to obtain a red-brownish oily liquid (liquid A); (B) emulsifying of liquid A – (i) introducing silicon oil and n-butyl ether into the emulsifying device and then (ii) adding liquid A (to which TiCl_3 is previously added) under the highest stirring to emulsify liquid A ; (C) prepolymerization - (i) transferring the emulsion to a flask; (ii) introducing 500 ml hexane solution containing $\text{Al}(\text{C}_2\text{H}_5)_3$; and (iii) flowing ethylene into the flask to form a prepolymerized catalyst component; and (E) polymerization of α -olefin in the presence of the prepolymerized catalyst, wherein the resulting polymer has a size between 500 and 1,000 micron (Examples 1-5 –page 11-16). Thus, the present claims are anticipated by the disclosure of Cuffiani et al.

Allowable Subject Matter

7. Claims **1-32**, **36-47**, and **54** are allowable over the closest references: Yang et al. (US 6,800,580 B1) and Cuffiani et al. (EP 0 083 073 A1).

Yang et al. disclose a method to produce a solid titanium catalyst for polymerization of an α -olefin, the method comprising: (A) preparing a magnesium compound solution by dissolving a magnesium halide compound and a compound of Group IIIA of the Periodic Table in a mixed solvent comprising a cyclic ether, one or

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more alcohols, a phosphorous compound and an organic silane; (B) reacting the magnesium compound solution with a transition metal compound, a silicon compound, or a mixture thereof, and then **precipitating the solid particles**; and (C) reacting the precipitated solid particles with a titanium compound and an electron donor, wherein the compound of Group IIIA of the Periodic Table is aluminum halide; the particle has $d_{90} = 70.7 \mu\text{m}$; the electron donor can be dialkyl phthalate (col. 6, lines 39-40; col. 9, lines 4-10; claims 1-2). However, Yang et al. do not teach or fairly suggest the claimed process, wherein the process comprises, in particular, solidifying the droplets of the dispersed phase within an average size range of 5 to 200 μm by heating.

Cuffiani et al. disclose a method to prepare a catalyst component, the method comprising (A) preparation of emulsifiable liquid A – (i) introducing 44.07 g of anhydrous MgCl_2 , 199 g of anhydrous AlCl_3 , 640 ml of anhydrous toluene, and 80 ml of dehydrated 1,2-dichloroethane into a flask fitted with stirrer; (ii) heating the resulting suspension to 110°C and then maintaining it at that temperature for 2 hours; and then (iii) filtering it to obtain a red-brownish oily liquid (liquid A); (B) emulsifying of liquid A – (i) introducing silicon oil and n-butyl ether into the emulsifying device and then (ii) adding liquid A (to which TiCl_3 is previously added) under the highest stirring to emulsify liquid A ; (C) prepolymerization - (i) transferring the emulsion to a flask; (ii) introducing 500 ml hexane solution containing $\text{Al}(\text{C}_2\text{H}_5)_3$; and (iii) flowing ethylene into the flask to form a prepolymerized catalyst component; and (E) polymerization of α -olefin in the presence of the prepolymerized catalyst, wherein the resulting polymer has a size between 500 and 1,000 micron (Examples 1-5 –page 11-16). However, Cuffiani

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et al. do not teach or fairly suggest the claimed process, wherein the process comprises, in particular, solidifying the droplets of the dispersed phase within an average size range of 5 to 200 μm by heating.

Response to Arguments

8. Applicant's arguments filed 02/10/2009 have been fully considered but they are not persuasive.

The caselaw has held that “[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” **In re Thorpe**, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). It is concluded that the patentability of the product made by the claimed process depends on the product itself. Thus, the rejections of claims 33-34 and 48-53 are maintained.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

/Ling-Siu Choi/

Primary Examiner, Art Unit 1796

May 25, 2009

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